



Service facility for risk assessment and resilience of infrastructure investments

Advisory service

The challenge

When infrastructure fails, e.g. due to extreme weather events, direct asset damage with services being disrupted leads to socio-economic disruptions hampering overall development objectives. Infrastructure is increasingly becoming vulnerable to climate change, already today and likely more so in the future. Hence, infrastructure needs to be designed, built, operated, and used with a larger coping range than in the past to maintain its structural safety and serviceability. To ensure the sustainability and longevity of infrastructure investments (ca. \$5 trillion/year), it is important that climate risks are systematically considered (climate proofing) throughout the infrastructure investment lifecycle. However, the enabling framework conditions for systemic climate proofing are often inadequately developed. This includes a lack of skills to develop and use customized and downscaled climate scenarios, the absence of resilience performance standards, as well as institutionalized mechanisms, methodologies, and technical skills for carrying out and facilitating data driven risk assessments.

Our approach

To minimize the risk of malinvestments considering climate change impacts, climate resilience needs to be built-in at all stages of the infrastructure planning cycle: from infrastructure policy and planning to project identification, design, finance, and operation of existing infrastructure. For this, GIZ's capacity development and advisory services focusses on four key intervention areas:

1. Enhancing technical capacities within partner countries to carry out and exercise ISO confirmative (ISO 31000, 31010, 14090, 14091, 14092) infrastructure risk

assessments in multi-stakeholder environments and advising national authorities to develop and adopt customized risk assessment methodologies.

2. Advising on developing regulative and institutional frameworks to ensure the systematic uptake of climate risk in infrastructure investment decisions.

3. Advising on developing tailor-made climate service products that meet the requirements of engineers and planners for developing climate resilient infrastructure.

4. Advising on establishing inter-agency partnerships and (digital) mechanisms for ensuring timely provision, access, and tailoring of relevant and salient climate and infrastructure related data fit for risk assessment purposes.

To meet the fast-growing demand for advisory services on climate resilient infrastructure investments, GIZ, together with the Canadian Think Tank Climate Risk Institute (CRI) and the Institute for Catastrophic Loss Reduction (ICLR), have formed an Alliance to operate as an international service facility and one-stop-shop for the application of the infrastructure focussed risk assessment protocol of the Public Infrastructure Engineering Vulnerability Committee (PIEVC). With more than 200 applications of the PIEVC protocol worldwide, the Alliance provides highly qualified advisory services at low transaction costs and in a timely manner for our partner countries, their authorities, and relevant institutions in the public and private sphere.

Our services

The core services of the PIEVC Alliance include:

- » Advise on carrying out and institutionalizing PIEVC climate risk assessments in partner countries. We provide access to experienced risk assessment



process facilitators and subject matter specialists, complementary decision support tools, incl. technical manuals, guidelines, digital applications, and access to expertise to develop tailored climate information products.

- » Advise on identifying the best suitable PIEVC climate risk assessment methodology for different types of investment decision contexts and any type of infrastructure (e.g., fast track or in-depth, single assets to multiple asset portfolio).
- » Training (virtual or hybrid) on the PIEVC protocol, incl. resilience engineering, risk assessment, climate services and risk assessment process facilitation. These are customized and range from highly specialized technical to awareness level trainings for decision makers and practitioners. Such Human Capacity Development (HCD) measures can accompany the piloting of risk assessments and are facilitated by experienced and certified PIEVC trainers and subject matter specialists.
- » Access to the PIEVC International Practitioners Network which represents a vast network of experienced engineers, planners, operators, practitioners, and decision makers. This invaluable network allows for climate risk related peer-learning, mutual exchange, collaboration, and further business development.

The benefits

The PIEVC Program is a fast-growing international service hub for climate resilient infrastructure investments. Alliance partners CRI and ICLR act as a service provider and broker, providing timely access and tailored advisory services on risk assessment pathways, incl. sourcing, pooling, and managing subject matter specialists (e.g., applied climate scientists, risk assessment process facilitators), experts at the interface of

climate and engineering, and experienced capacity building trainers. GIZ takes a key role in ensuring access and high-quality performance of PIEVC's services offered through CRI and ICLR and facilitating between demands for advisory services in GIZ's partner countries and the services offered through the Alliance.

An example from the field

GIZ, commissioned by the International Climate Initiative (IKI) and the Ministry for Economic Cooperation and Development (BMZ), built capacity, and advised numerous partner countries on applying PIEVC's risk assessments protocol at different scales through collaboration with the PIEVC Alliance, e.g. Vietnam (sluice gates: in-depth single assets to large portfolio assessments), Brazil (analysis of 21 ports), Costa Rica (bridges), Lesotho (water supply systems), and the Nile Basin (5 water infrastructure projects providing water and energy supply to rural areas).

The advisory services have led to the establishment of mechanisms to systematically reflect climate risks in infrastructure investments. Costa Rica established a standard for climate risk assessments based on a presidential decree. Brazil established a digital platform for creating a transparent marketplace for private and public climate service providers and trained trainers to provide advisory services on climate resilient infrastructure investments. The Nile Basin Initiative (NBI) developed a regional knowledge management hub, incl. an e-learning course on climate proofing of infrastructure investments and a databank for customized hydrological scenarios for the entire Nile Basin. In Vietnam, a climate proofed sluice gate based on a PIEVC application has been constructed to manage drought risk in the Mekong Delta.

Imprint

Published by:
Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

Registered offices
Bonn and Eschborn

Dag-Hammarskjöld-Weg 1-5
65760 Eschborn, Germany
T +49 61 96 79-0
F +49 61 96 79-11 15

E info@giz.de
I www.giz.de

Responsible/Contact:

Dr. Niklas Baumert | Enhancing Climate Services for Infrastructure Investments (CSI)
E niklas.baumert@giz.de
Dr. Sandra Schuster | Climate Change, Rural Development, Infrastructure (FMB)
E sandra.schuster@giz.de

Photo credits:
Front page (from left to right): sittitap/Shutterstock.com; GIZ/Shilpi Saxena
Back page (from left to right): GIZ/Florian Kopp, Bernhard Bösl; africa924/Shutterstock.com

GIZ is responsible for the content of this publication.

Eschborn 2023